



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-1185; Project Identifier AD-2021-00339-E]

RIN 2120-AA64

Airworthiness Directives; Honeywell International, Inc. (Type Certificate previously held by AlliedSignal, Inc. and Textron Lycoming) Turboshaft Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to supersede Airworthiness Directive (AD) 2002-03-01, which applies to all Honeywell International, Inc. (Honeywell) T53 model turboshaft engines. AD 2002-03-01 requires initial and repetitive special vibration tests of the engine, and if necessary replacement with a serviceable reduction gearbox assembly, or a serviceable engine before further flight. Since the FAA issued AD 2002-03-01, the FAA received reports that two additional Honeywell model turboshaft engines, not captured in AD 2002-03-01, are also subject to tachometer drive spur gear failures due to vibration loads. This proposed AD would require initial and repetitive special vibration tests of the engine and, depending on the results, replacement of either the reduction gearbox assembly or the engine. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: (202) 493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Honeywell International, Inc., 111 South 34th Street, Phoenix, AZ 85034; phone: (800) 601-3099; fax: (602) 365 5577; website: <https://myaerospace.honeywell.com/wps/portal>. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-1185; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Jeffrey Chang, Aviation Safety Engineer, Los Angeles ACO Branch, FAA, 3960 Paramount Boulevard, Lakewood, CA 90712; phone: (562) 627-5263; fax: (562) 627-5210; email: jeffrey.chang@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2021-1185; Project Identifier AD-2021-00339-E” at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend the proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to <https://www.regulations.gov>, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Jeffrey Chang, Aviation Safety Engineer, Los Angeles ACO Branch, FAA, 3960 Paramount Boulevard, Lakewood, CA 90712. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA issued AD 2002-03-01, Amendment 39-12642 (67 FR 6857, February 14, 2002) (AD 2002-03-01) for all Honeywell (formerly AlliedSignal, Inc. and Textron Lycoming) T5311A, T5311B, T5313B, T5317A, T5317B, and former military T53-L-11, T53-L-11A, T53-L-11B, T53-L-11C, T53-L-11D, T53-L-11A S/SA, T53-L-13B, T53-L-13B S/SA, T53-L-13B S/SB, and T53-L-703 model turboshaft engines. AD 2002-03-01 was prompted by reports of tachometer drive spur gear failure, resulting in potential engine overspeed, loss of power turbine speed (N2) instrument panel indication, and hard landings. AD 2002-03-01 requires initial and repetitive special vibration tests of the engine and, for engines that fail the special vibration tests, replacement of the gearbox assembly or engine before further flight. The agency issued AD 2002-03-01 to prevent

excessive vibrations produced by the reduction gearbox assembly that could cause failure of the tachometer drive spur gear.

Actions Since AD 2002-03-01 Was Issued

Since the FAA issued AD 2002-03-01, the FAA received reports that Honeywell T5317A-1 and T5317BCV model turboshaft engines are subject to the same unsafe condition identified in AD 2002-03-01, tachometer drive spur gear failures due to vibration loads. These model turboshaft engines were not included in the applicability of AD 2002-03-01. The FAA and Honeywell determined that the Honeywell T5317A-1 engine model was inadvertently left out of the applicability of AD 2002-03-01 and the Honeywell T5317BCV engine model was introduced into production after the publication of AD 2002-03-01.

FAA's Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Related Service Information under 1 CFR Part 51

The FAA reviewed AlliedSignal Aerospace Service Bulletin (SB) T5311A/B-0100, dated January 20, 2000. This SB specifies procedures for performing a special vibration check on Honeywell T5311A and T5311B model turboshaft engines.

The FAA reviewed AlliedSignal Aerospace SB T5313B/17-0100, dated November 19, 1999. This SB specifies procedures for performing a special vibration check on Honeywell T5313B, T5317A, and T5317B model turboshaft engines.

The FAA reviewed Honeywell SB T53-0147, dated May 29, 2007. This SB specifies procedures for performing a special vibration check on Honeywell T5317A-1 model turboshaft engines.

The FAA reviewed Honeywell Maintenance Manual Temporary Revision (TR) No. 165, dated July 29, 2020. This TR specifies procedures for performing a special vibration check on Honeywell T5313B, T5317A, T5317A-1, T5317B, and T5317BCV model turboshaft engines.

The FAA reviewed AlliedSignal Aerospace SB T53-L-11-0100, Revision 2, dated January 20, 2000. This SB specifies procedures for performing a special vibration check on Honeywell T53-L-11, -11A, -11B, -11C, -11D, and -11A S/SA model turboshaft engines.

The FAA reviewed AlliedSignal Aerospace SB T53-L-13B-0100, Revision 2, dated May 11, 1999. This SB specifies procedures for performing a special vibration check on Honeywell T53-L-13B, -13B S/SA, and -13B S/SB model turboshaft engines.

The FAA reviewed AlliedSignal Aerospace SB T53-L-703-0100, Revision 2, dated May 11, 1999. This SB specifies procedures for performing a special vibration check on Honeywell T53-L-703 model turboshaft engines.

The Director of the Federal Register approved AlliedSignal Aerospace SB T5313B/17-0100, dated November 19, 1999; AlliedSignal Aerospace SB T53-L-13B-0100, Revision 2, dated May 11, 1999; AlliedSignal Aerospace SB T53-L-703-0100, Revision 2, dated May 11, 1999; AlliedSignal Aerospace SB T5311A/B-0100, dated January 20, 2000; and AlliedSignal Aerospace SB T53-L-11-0100, Revision 2, dated January 20, 2000, for incorporation by reference as of March 21, 2002 (67 FR 6857, February 14, 2002). This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Other Related Service Information

The FAA reviewed AlliedSignal Aerospace SB T5311/T53-L-11-0103, dated January 20, 2000. This SB specifies procedures for replacing the reduction gearbox assembly on Honeywell T5311A and T5311B model turboshaft engines and Honeywell T53-L-11, -11A, -11B, -11C, -11D, and -11A S/SA model turboshaft engines.

The FAA reviewed AlliedSignal Aerospace SB T5313B/17-0103, dated November 19, 1999. This SB specifies procedures for replacing the reduction gearbox assembly on Honeywell T5313B, T5317A, and T5317B model turboshaft engines.

The FAA reviewed AlliedSignal Aerospace SB T53-L-13B-0103, Revision 4, dated November 2, 1999. This SB specifies procedures for replacing the reduction

gearbox assembly on Honeywell T53-L-13B, -13B S/SA, and -13B S/SB model turboshaft engines.

The FAA reviewed AlliedSignal Aerospace SB T53-L-703-0103, Revision 4, dated November 2, 1999. This SB specifies procedures for replacing the reduction gearbox assembly on Honeywell T53-L-703 model turboshaft engines.

Proposed AD Requirements in this NPRM

This proposed AD would retain all of the requirements of AD 2002-03-01. This proposed AD would require initial and repetitive special vibration tests of the engine and, depending on the results, replacement of either the reduction gearbox assembly or the engine. This proposed AD would also expand the applicability to include Honeywell T5317A-1 and T5317BCV model turboshaft engines.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 150 engines installed on helicopters of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Special vibration test of the engine	4 work-hours x \$85 per hour = \$340	\$0	\$340	\$51,000

The FAA estimates the following costs to do any necessary replacement that would be required based on the results of the proposed special vibration test. The agency has no way of determining the number of aircraft that might need this replacement:

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
Replace the reduction gearbox assembly	40 work-hours x \$85 per hour = \$3,400	\$48,000	\$51,400
Replace the engine	24 work-hours x \$85 per hour = \$2,040	\$250,577	\$252,617

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Would not affect intrastate aviation in Alaska, and
- (3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by:

a. Removing Airworthiness Directive 2002-03-01, Amendment 39-12642 (67 FR 6857, February 14, 2002); and

b. Adding the following new airworthiness directive:

Honeywell International Inc. (Type Certificate previously held by AlliedSignal, Inc. and Textron Lycoming): Docket No. FAA-2021-1185; Project Identifier AD-2021-00339-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2002-03-01, Amendment 39-12642 (67 FR 6857, February 14, 2002).

(c) Applicability

This AD applies to Honeywell International, Inc. (Type Certificate previously held by AlliedSignal, Inc. and Textron Lycoming) T5311A, T5311B, T5313B, T5317A, T5317A-1, T5317B, T5317BCV, and former military T53-L-11, T53-L-11A, T53-L-11B, T53-L-11C, T53-L-11D, T53-L-11A S/SA, T53-L-13B, T53-L-13B S/SA, T53-L-13B S/SB, and T53-L-703 model turboshaft engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 7600, Engine Controls.

(e) Unsafe Condition

This AD was prompted by reports of tachometer drive spur gear failure, resulting in potential engine overspeed, loss of power turbine speed (N2) instrument panel indication, and hard landings. The FAA is issuing this AD to prevent excessive vibrations produced by the reduction gearbox assembly that could cause failure of the tachometer

drive spur gear. The unsafe condition, if not addressed, could result in failure of the engine, loss of thrust control, and damage to the aircraft.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) Within 100 flight hours (FHs) after the effective date of this AD, perform an initial special vibration test of the engine using the service information, as applicable to the engine model, listed in Table 1 to paragraph (g)(1) of this AD.

Table 1 to paragraph (g)(1) –Applicable Service Information

Engine Model	Service Information
Honeywell T5311A and T5311B	Accomplishment Instructions, paragraph 3.A. of AlliedSignal Aerospace Service Bulletin (SB) T5311A/B-0100, dated January 20, 2000
Honeywell T5313B, T5317A, and T5317B	Accomplishment Instructions, paragraph 3.A. AlliedSignal Aerospace SB T5313B/17-0100, dated November 19, 1999, or paragraph 11.F of Honeywell Maintenance Manual Temporary Revision (TR) No. 165, dated July 29, 2020
Honeywell T5317A-1	Accomplishment Instructions, paragraph 3.A. of Honeywell SB T53-0147, dated May 29, 2007, or paragraph 11.F of Honeywell Maintenance Manual TR No. 165, dated July 29, 2020
Honeywell T5317BCV	Paragraph 11.F of Honeywell Maintenance Manual TR No. 165, dated July 29, 2020
Honeywell T53-L-11, -11A, -11B, -11C, -11D, and -11A S/SA	Accomplishment Instructions, paragraph 3.A. of AlliedSignal Aerospace SB T53-L-11-0100, Revision 2, dated January 20, 2000
Honeywell T53-L-13B, -13B S/SA, and -13B S/SB	Accomplishment Instructions, paragraph 3.A. of AlliedSignal Aerospace SB T53-L-13B-0100, Revision 2, dated May 11, 1999
Honeywell T53-L-703	Accomplishment Instructions, paragraph 3.A. of AlliedSignal Aerospace SB T53-L-703-0100, Revision 2, dated May 11, 1999

(2) Thereafter, within the following compliance times, perform repetitive special vibration tests of the engine:

(i) For engines that have tachometer drive spur gear part number (P/N) 1-070-062-04 installed, perform a repetitive special vibration test before exceeding 500 FHs since the last special vibration test.

(ii) For engines that have tachometer drive spur gear P/N 1-070-062-06 installed, perform a repetitive special vibration test before exceeding 1,000 FHs since the last special vibration test.

(3) If, during any special vibration test required by paragraph (g)(1) or (2) of this AD, an engine exceeds the 0.2 inches per second (IPS) limit for any peak RPM/frequency bands, perform one of the following:

(i) Before further flight, replace the reduction gearbox assembly with a reduction gearbox assembly eligible for installation; or

(ii) Before further flight, replace the engine with an engine eligible for installation.

(4) After replacing the reduction gearbox assembly or engine, as required by paragraph (3)(i) or (ii) of this AD, before further flight, perform an initial special vibration test of the engine using the service information, as applicable to the engine model, listed in Table 1 to paragraph (g)(1) of this AD.

(5) If, during the special vibration test required by paragraph (g)(4) of this AD, an engine exceeds the 0.2 IPS limit for any peak within the RPM/frequency bands, before further flight, replace the reduction gearbox assembly or the engine.

(h) Definitions

(1) For the purpose of this AD, a “reduction gearbox assembly eligible for installation” is a new, zero hour reduction gearbox assembly or an overhauled reduction gearbox assembly with tachometer drive spur gear P/N 1-070-062-04 or P/N 1-070-062-06 that does not exceed the 0.2 IPS limit for any peak within the RPM/frequency bands during the administered special vibration test.

(2) For the purpose of this AD, an “engine eligible for installation” is an engine with tachometer drive spur gear P/N 1-070-062-04 or P/N 1-070-062-06 that does not exceed the 0.2 IPS limit for any peak within the RPM/frequency bands during the administered special vibration test.

(i) No Reporting Requirement

The reporting requirements in the Accomplishment Instructions, paragraph 3.A. or paragraph 11.F, of the service information, as applicable to the engine model, listed in Table 1 to paragraph (g)(1) of this AD, are not required by this AD.

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Los Angeles ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (k)(1) of this AD. Information may be emailed to: 9-ANM-LAACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) AMOCs approved for AD 2002-03-01 (67 FR 6857, February 14, 2002) are approved as AMOCs for the corresponding provisions of this AD.

(k) Related Information

(1) For more information about this AD, contact Jeffrey Chang, Aviation Safety Engineer, Los Angeles ACO Branch, FAA, 3960 Paramount Boulevard, Lakewood, CA 90712; phone: (562) 627-5263; fax: (562) 627-5210; email: jeffrey.chang@faa.gov.

(2) For service information identified in this AD, contact Honeywell International, Inc., 111 South 34th Street, Phoenix, AZ 85034; phone: (800) 601-3099; fax: (602) 365 5577; website: <https://myaerospace.honeywell.com/wps/portal>. You may view this referenced service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

Issued on January 18, 2022.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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